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Care and Preservation of Food in the Home

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The benefits of education and of useful knowledge, generally diffused through a community, are essential to the preservation of a free government.

Sam Houston

Cultivated mind is the guardian genius of democracy. . . . It is the only dictator that freemen acknowledge and the only security that freemen desire.

President Mirabeau B. Lamar.

CARE AND PRESERVATION OF FOOD IN THE HOME

The health and efficiency of a community are largely dependent upon its food. It is not only essential that the community have an adequate food supply, but that it should be a clean and uncontaminated food supply as well. Much is being done by federal, state and local authorities to provide pure and clean food for the public, but more could be done if the woman in the home had a more thorough knowledge of the various sources of food contamination, and would co-operate with the authorities by refusing to purchase foods from stores which do not meet the sanitary requirements. It is also essential that the home maker should watch the care of food in her own home. There are many sources of food contamination in the home, and most housekeepers are guilty of neglect along these lines. Unlike charity, the care and preservation of food should begin, not at home, but outside of the home at the various places of production and distribution, but the same care and vigilance must also prevail in its handling in the home if we are to have a clean and wholesome food supply.

The care and preservation of foods is also an economic question, and is becoming a matter of greater importance as food increases in price. If this nation is to successfully feed her growing millions, her people must not only learn to produce far more per acre, but they must learn to utilize to better advantage everything produced. The misuse and waste of foods account for the bankruptcy of many firms and many households.

Micro-organisms—Why Foods Spoil.—There are two main causes for the spoiling of foods: First, normally there occur in foods, such as fruits, vegetables, eggs, meats, and seeds of all plants, certain processes, called life processes, which cause the fruit to ripen, seeds to grow, and meat to soften, and which lead to decay. Second, there are present in or on the foods certain minute living organisms which feed on them and change them so that they cease to be desirable, and may even become harmful to us. The gas produced in the can of fruit which we say is "working," the mold on various foods, the

odors of meat and eggs that are decaying, are familiar to every housewife, and are examples of the effect that these microscopic organisms called yeasts, molds, and bacteria have on food. These organisms grow everywhere, and reproduce rapidly; they are as light as the dust, and blow about with it. They alight on the surface of furniture, on our faces and hands, on our utensils and exposed food. They get into our food and water, and, through them, into the body. They may obtain access through an abrasion in the skin. Dirty food, water, or clothing are dangerous sources of infection, as they may harbor many bacteria, which, when once in the body, find an abundance of food and, if other conditions are suitable, multiply rapidly. Although they are found in the cleanest rooms, they exist in far greater numbers in dirty quarters.

Sometimes we intentionally cultivate these tiny organisms by providing for them a food that will aid in their growth and reproduction, as when we put yeast into dough to obtain a sponge for light bread; or when we put the Bacillus Bulgaricus into milk to obtain our Bulgarian buttermilk; or add bread mold to cheese to produce the Roquefort flavor. Usually, however, our problem is to control or get rid of these organisms. They not only sour, rot, or putrify our foods, and leave behind disagreeable odors and flavors, but certain substances called ptomaines which are often poisonous may develop as a result of bacterial action.

In order to cultivate these micro-organisms, or to prevent their growth, scientists have studied the conditions that favor their development. They have found that filth, warmth, moisture, food, and oxygen encourage their growth, but that cleanliness, low temperatures, very high temperatures, certain preservatives and the removal of moisture will prevent it.

Cleanliness Essential to a Safe Food Supply.—The first requisite in the handling, storage and preservation of foods is absolute cleanliness. This is to be obtained by the generous use of soap, water, sunshine, air, whitewash, paint and screens.

Personal Cleanliness in the Kitchen.—Nowhere should a higher standard of personal cleanliness be maintained than in the kitchen. Food and fingers are carriers of contagion. If the

necessity for clean hands and the proper method of washing the hands were carefully taught and carefully practiced, a great step would be made toward bacteriologically clean food. The woman who sneezes or coughs over food, and who tastes from the spoon and returns it to the dish being prepared, is blind to the fact that the tubercle bacilli, or other disease germ from her mouth may, through this means, find lodgment in her children. The cook who fails to cleanse her hands thoroughly after visiting the toilet may be a source of contagion. Again, the hands will touch the clothing; which consequently must be clean and free from any soil that could rub off. Would you know what to eat? See who cooks it; watch her work; know her state of health.

People who are apparently healthy are often carriers of disease germs. In one of our Eastern towns typhoid fever appeared in two different parts of the town. The water was examined and every effort made to locate the cause. The only thing these families had had in common was a cook. On examination, the excretions of her body were found to be full of typhoid fever germs. This case of "Typhoid Mary," as she is known to the medical world, should serve as a warning. Every person who handles food should take care that the clothing, body, and personal habits are clean.

How to Sweep and Dust.—Dust has been described as a little of everything. It certainly can be expected to contain almost any kind of micro-organisms, such as the tuberculosis bacilli, yeasts, molds, and the bacteria of decay. Dust, after being well stirred up, is likely to remain in the air for some time. It settles on unprotected food, and in this way is carried into the human system. It is not sufficient then to cover dishes or a table just before the sweeping. Damp sawdust or bits of damp newspaper or oiled sweeping compound may be sprinkled over the floor to keep the dust from rising. It is of the highest importance to have the floor washed every few days. Dusting with a dry cloth or feather duster will stir these organisms into the air, therefore such a cloth should never be used, but a cloth dampened with water or oil should be used for dusting, to the end that the dust may be carried from the room rather

than thrown into the air. Too much care cannot be taken in eliminating dust from every place where food is to be eaten or produced. A vacuum cleaner is desirable, not only as a saver of labor, but because it stirs up no dust, and is, therefore, much more sanitary than a broom. Many good and inexpensive ones are on the market.

How to Wash Dishes.—Probably not more than ten per cent of the women wash dishes correctly. The bacteriologist is likely to call the ordinary method of washing dishes a "smear." Dishes washed in hot soapy water, rinsed with scalding water and wiped with a towel which was boiled since it was last used are practically sterile. Poorly washed dishes are the cause of disagreeable odors and flavors, and often of disease. Instances are not lacking to prove that colds, lagrippe, typhoid fever, measles, and other contagious diseases have often been transmitted by one member of a family to others through the promiscuous use of unsterilized dishes from the sick room.

How to Wash and Fill the Refrigerator.—The refrigerators, especially the cheaper ones, no matter how well cooled, are apt to be damp inside. Dampness is one of the requirements for bacterial growth; and since some bacteria develop at temperatures as low as we can hope to keep in the average refrigerator, care must be taken to reduce the dampness to the minimum, and to cleanse the refrigerator thoroughly at least once a week. A plate of unslacked lime placed inside of the refrigerator will collect the dampness. As soon as it slakes it should be renewed.

The weekly cleaning should consist in removing everything from the ice box, washing, and with boiling water scalding the sides and shelves of the refrigerator. Sapolio will remove stains from the enamel. The drain pipes should be taken apart and well scalded. The refrigerator drain should never flow into the kitchen sewer, lest the sewer gas come back into the refrigerator and ruin the flavor of the food.

Milk and butter should be kept in closed receptacles on the lower shelf. All strong-smelling foods should be in tightly closed containers. A plate of charcoal will absorb odors, but if the refrigerator is properly cared for the charcoal will not be needed.

Washing of Fruits and Nuts.—All fruits which are exposed to the dust and careless handling of the market place should be carefully washed before being used. Fruit with a firm skin should be washed before being pared. Small fruits may be cleansed without an appreciable loss of flavor if washed a few at a time.

Dried figs, raisins, and dates are often eaten without cooking or washing. How long, and to what filth and contagion they have been exposed, it is impossible to know. In how many houses are the oranges washed before they are put on the breakfast table or before the rind is grated for flavoring? Who has not seen the lemon for tea sliced without being washed? No matter what the fruit, it should be washed before being eaten.

A little girl who purchased oranges frequently of the dirty fruit vender near the school developed a horrible and incurable sore on her mouth. It was found that the fruit vender, who had a cancer in his mouth, always spat on his fruit, and rubbed it on his pocket handkerchief, or a cloth to brighten it. Similar incidents frequently occur. Such facts as these should be a warning against the promiscuous buying, serving and eating of uncooked foods.

Cleansing of Vegetables.—It seems scarcely necessary, after what has been said of fruits, to speak of the fact that vegetables should be washed thoroughly before being eaten raw, and that the cleanliness of the water in which they are washed should be beyond question. Typhoid fever, diarrhoea, and cholera have again and again been transmitted through the water in which the vegetables were washed. All too often the soil used in the bleaching of celery, that washed into the lettuce hearts, or the sand clinging to asparagus or spinach is served with the vegetable. Since night soil, containing hook-worm eggs, typhoid, and other germs is often used by ignorant truck raisers, serious consequences may follow. Some housewives are so afraid of dirt, however, that upon receiving potatoes, turnips and beets, they proceed at once to wash them. This is very unwise, as it hastens decay. If the farmers of our land should wash the dirt from their potatoes when they dug them, the potatoes

would shrivel and decay long before they could supply us with a new crop.

Hints on Keeping Vegetables, Fruits, and Meats.—When the market order is delivered, eggs, butter, milk, and meat should, after the coverings are removed, be put at once into the refrigerator—eggs, butter, and milk on the bottom shelf, so that no possible odors may be absorbed. The meat may be placed in the ice chamber; fish should always be placed in the ice chamber unless it is placed in a tightly closed enamel pail. Green vegetables should be spread out in the store room, or, as in the case of spinach, parsley, and such vegetables, sprinkled with a little water to freshen them. Corn, beans, and peas should be cooked as soon as possible after buying.

Eggs.—If eggs are bought in sufficient quantities to be stored they should be coated in some way to keep out the bacteria containing air. One of the best coatings is water-glass.

WATER-GLASS SOLUTION

The commercial water-glass solution may be obtained from any drug store at a cost of about 20 cents a quart. Mix 1½ quarts of this solution with 18 quarts of pure water; water that has been boiled is preferable. Stir the mixture until the ingredients are thoroughly mixed. A stone jar is the most suitable vessel for the mixture. Two eight-gallon jars are sufficient for 30 dozen eggs, using the amount of solution prescribed above. After the water-glass is thoroughly mixed, pour it into the different vessels to be used, being sure that the vessels are absolutely clean. Place the eggs in the water-glass, see that those at the top are covered by at least two inches of the liquid, and cover the jars in order to prevent evaporation. Put the jars in a cool place where they will be undisturbed during the year.

Only fresh, preferably infertile, eggs should be used. Eggs should not be washed, but should be wiped clean lest they become tainted in flavor.

Fruits.—When caring for fruits the stems should not be pulled or rubbed off. If for economical reasons fruit be bought in quantity, it should be treated as potatoes are—sorted into

large and small, and gone over regularly to remove the specked ones.

Care of Milk.—Milk is a perfect food for the young, but it is also an excellent food for bacterial growth and reproduction. For these reasons no milk should be used that is not drawn from a healthy cow, handled by clean, healthy people, and bottled in sterilized bottles. It is best to pasteurize milk if you fear contamination, or are uncertain of the purity of your supply. Milk delivered in sterilized bottles should remain in them until used. The mouth of the milk bottle must always be washed when received, or the milk when poured out over it, will contain the bacteria from the hands of the deliverer, or, possibly, from the cat that licked the bottle—if it was left on the doorstep for some time.

Preservation of Foods by Low Temperature.—Nothing has had a more equalizing influence on prices of foods, particularly of fruits, vegetables, and eggs, than the cold storage plants on the farm, the large cold storage warehouses, and the refrigerated cars for transportation. The big dealer holds the eggs that come in while they are abundant and cheap. The farmer has found that if it pays the dealer it will pay him. Instances could be given of farmers who have paid for their refrigerating system in a few weeks by the increased price of eggs alone. The man who has a refrigerating system large enough to be able to buy some things, such as meat, at wholesale, even for his own table, or to hold his egg supply for even sixty days is the man who is making things count.

Certainly, every family in our state should have some method of cooling foods. The crudest methods are such as make use of water through some system of evaporation. A better method, of course, is the use of ice in refrigerators or ice boxes.

The pitcher wrapped in a wet cloth and set in a pan of water is kept cool by the evaporation of the water from the cloth. This may be worked out on a large enough scale to act as a family cooling box. To have a constant stream of cold water surrounding the cooling box is, of course, better.

For the following description and cut of a home-made refrigerator, we are indebted to the United States Department of Agriculture:

"A good refrigerator may be made by the handy man of the family at slight expense. Two boxes must be made, one of which should be 12 inches longer, wider, and deeper than the other. If the inner box is three feet long, 2 feet wide, and 2 feet deep, the outer box should be 4 feet long, 3 feet wide, and 3 feet deep.

"The inner box should be:

a. Made of matched white pine or cypress.
b. Lined with zinc.
c. Provided with a drip pipe in the bottom near one end and a metal grating across the box one foot from the drip-pipe end, to make a cage for holding the ice.
d. Enclosed by two thicknesses of waterproof building paper tacked around the outside.

"The outer box should be:

a. Made of matched lumber.
b. Lined with two thicknesses of waterproof building paper.
d. Made to connect with the drip-pipe provided in the inner box.

"To make the ice box, place the smaller box on the layer of insulation so that the drain pipe will pass from the inner to the outer box. Pack the insulating material (cork dust or shavings) tightly in the space between the inner and outer boxes. Fit a board over the packing between the boxes so as to make a tight joint; if possible, zinc should cover the joint. Hinge a thick, well-insulated cover to the outer box and make joints tight with weather strips and felt.

"For the cover procure a piece of matched board to cover completely the outer box, and a second piece of matched board to cover completely the inner box plus the layer of packing, allowance being made for sticking of the cover. Put the two boards together, with a layer of insulating material between them."

Preservation of Food by Drying.—In the drying method of preserving food we rely upon the withdrawal of moisture affecting the bacteria so that they can no longer develop. The flavor of dried foods does not equal that of foods preserved by

heat, but this method of preserving often has an economic advantage which is not to be overlooked.

Preservation of Food by Means of High Temperature.— Warmth stimulates the life processes which cause fruit to ripen, seeds to grow, and meat to soften, which conditions lead to decay. Warmth also stimulates the growth and reproduction of the tiny microscopic organisms which feed upon our food, our clothes, or ourselves, as the case may be. When the heat is sufficiently increased, these life processes going on in the food are checked, and the organisms living upon them are destroyed unless they happen to be in the spore, or seed, form. In this spore form they are able to resist freezing and boiling, and can only be destroyed by very high heat or continued boiling for several hours. When warmth, moisture, and food are given them, they develop in a few days all the activity of which they are capable. It is upon our application of this knowledge of bacterial life and changes occurring naturally in foods that we must base our success or failure in canning, which is the best example of preservation of foods by means of heat.

In the old way of canning, the fruit or vegetables were heated only to the boiling point. Although the active forms of bacterial life were thus destroyed, the spores remained and were even urged to activity by the heat that had been applied. In a few days they became active and began to reproduce, and, as a result, the food began to work, mold, or decay, according to the kind of organism present. Hence, we learned that foods must either be canned under pressure so that a temperature much above boiling is reached, or they must be heated to the boiling point on several days to destroy the spores.

Utensils Needed in Canning:

a. Canners.
b. Tested jars with good rubbers.
c. A wooden spoon.
d. Agate can filler.
e. Scales.
f. Good knives.

A good jar is one that is capable of keeping out air, and one

that is so constructed that the metal never comes in contact with the contents. It should be in one piece, with sides and mouthpiece as nearly straight as possible. Such a jar is easily

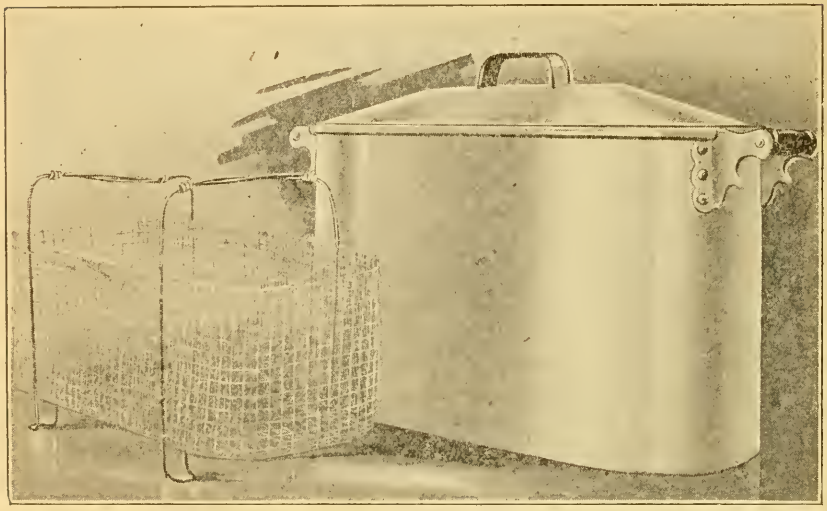

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Fig. 1.—Water-bath Canner (improvised). A, rack. B, containing vessel.

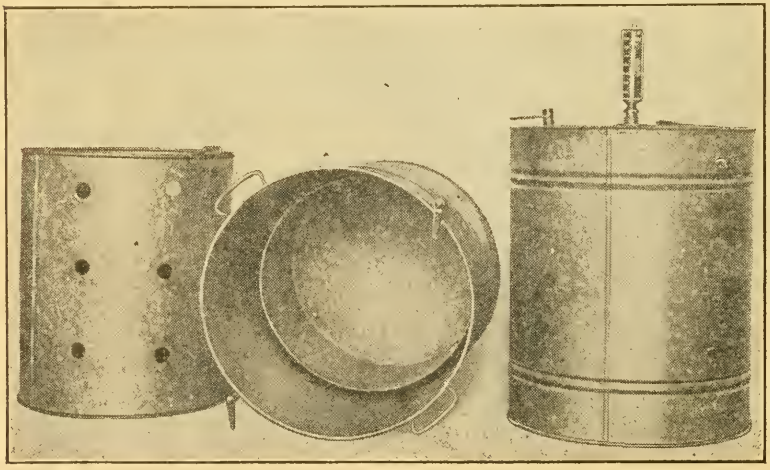

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Fig. 2.—Water Seal Canner. A, rack for holding can. B, cover. C, container.

cleaned and will take in whole fruits or large pieces of fruit or vegetables.

Fresh rubbers should be used each time. To use old or imperfect rubbers is poor economy.

There are three general types of canners on the market today; the water bath, the water seal, and the steam pressure canner.

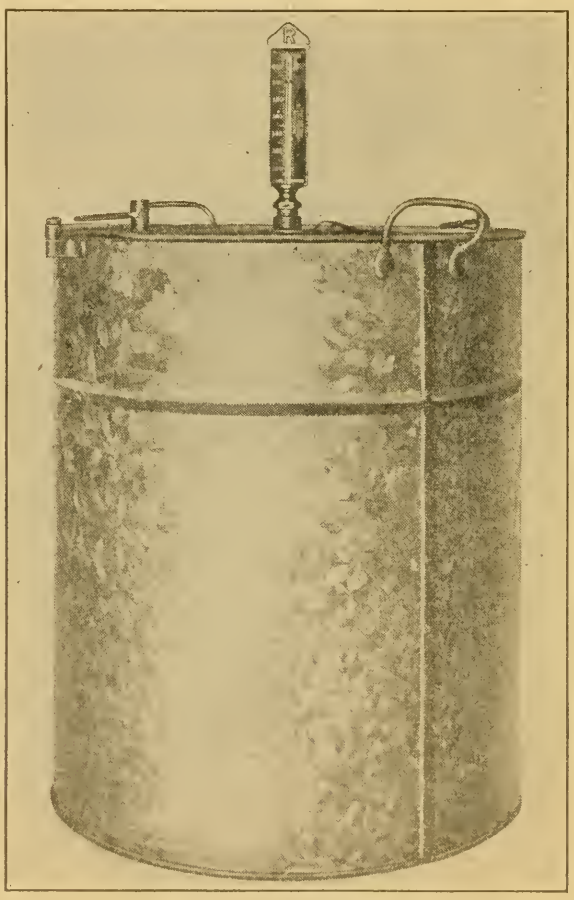

Fig. 3.—Canner filled.

(For the above cuts of canners we are indebted to the University of Missouri.)

The water-bath canner consists of a covered vessel containing a rack on which the cans may be placed to keep them from touching the bottom. The temperature cannot go above the boiling point. The water bath canner may be purchased, or a good one may be made by placing a wooden rack in the bottom of the covered water boiler.

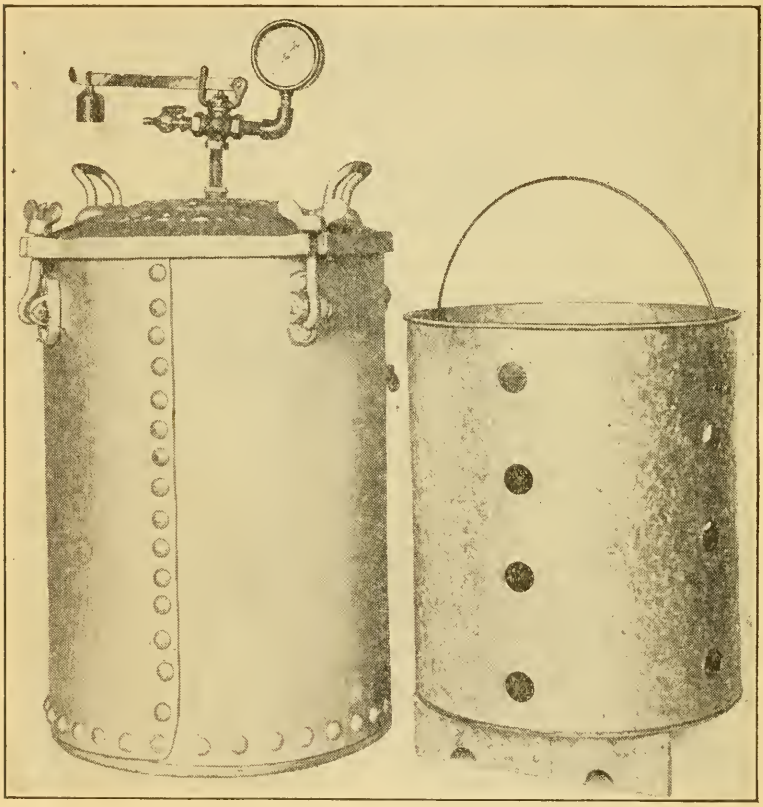

Fig. 4.—Steam Pressure Canner.

Water-seal canners consist of a container with double walls, a rack for holding cans, and a cover which fits between the walls of the container. A temperature higher than boiling is possible with this canner because of the double walls and the close fitting top and so the cooking time is shortened.

The pressure canner consists of a rack in which the cans set, a very heavy, strong container, the top of which is fastened down so securely with clamps that a high pressure is made possible, thus bringing the temperature much higher than the boiling point. The regulation of the pressure is automatic, and varies with the kind of food canned.

Preservation by Means of Preservatives.—Sugar, salt, vinegar, spice, and the so-called preserving powders may all be classed as preservatives. Preservatives are substances used to prevent or retard the growth of micro-organisms. These substances may be divided into the harmful, doubtful, and harmless.

Those known to be harmful are boric acid, the borates, benzoic acid, the benzoates, salicylic acid, the salicylates, sulfurous acid, the sulfites, and formaldehyde. Those about which there is doubt are the liquid smoke, and saltpeter. Those known to be harmless in moderate quantities are spices, sugar, salt, and vinegar.

Municipal Cleanliness.—Municipal cleanliness should be as scrupulously sought for as cleanliness in the individual home. To talk of the polluted water in the bucket, and at the same time fail to clean out the fountain, seems senseless. It is equally senseless to talk of the cleanliness of the housewife as to person, surroundings, and handling of foods in the home, and then allow the baker, with dirty hands and clothes, to handle unwrapped bread, drop it on the floor, perhaps upon the dried sputum of some tubercular person, and then send it to her home to be used by her family. Why advise the housewife to screen the house from the disease carrying fly, and say nothing about the number of times the fly has crawled over the bread and other foods in the grocery store?

Why should the housewife take such care in handling meat in the home and fail to be interested in regulating the handling and inspection of meats at the slaughter house and market, which are the greatest source of contamination?

Why give advice to the housewife about the cleanliness of her kitchen, and then allow it to be possible for her to contract any sort of vile disease because she ate at a restaurant or

hotel whose kitchen is not properly inspected and required to be kept sanitary?

Proper ventilation and screening, the provision of suitable conveniences for employes, and all the other things that make for a pure food supply must be a matter of concern to every woman. For the whole duty of a woman today does not end in her home, but must include the promulgation and strengthening of all movements to better the conditions of municipal housekeeping.